

Vitamin/mineral supplements: HMTc Standard

Karen Pendergrass ·  · Heavy Metal Tested & Certified, Institute of Contaminant Standards

CITE AS

Pendergrass, K. (2026). Vitamin/mineral supplements: HMTc Standard (Standard No. 10.83138/hmtc.std.18.pet-supplements-vitamin-mineral). Institute of Contaminant Standards.
<https://doi.org/10.83138/hmtc.std.18.pet-supplements-vitamin-mineral>
© 2026 Institute of Contaminant Standards / Heavy Metal Certified. All rights reserved.

KEYWORDS

heavy metals, food safety, dietary exposure

PUBLICATION HISTORY

This revision 2026-08.

CORRESPONDENCE

Corrections are logged publicly on the article page, each with its date, the affected value, and the source that resolved it.

Abstract

The Heavy Metal Tested & Certified heavy-metal-safety standard for vitamin/mineral supplements in Pet Supplements, evaluated on the supplement as sold (as-packaged concentrate): dry weight for powders, chews, tablets and capsules, neat liquid for oils and drops; no reconstitution, dilution, or as-fed conversion is applied. 7 of 11 panel analytes publish a numeric limit taken from the strictest applicable government maximum; the remainder are held under mandatory control or a substantiated not-material determination.

1 | How every number on this standard is set

HMTc Method v2.0 (government-limit default), pet-supplement double over-compliance form: the exact cell's only sovereign maximum is an animal-feed instrument, which is disclosed as a floor and never used; every published value is a disclosed read-across to the strictest applicable as-sold child-protective human-food sovereign maximum in the product's native as-sold basis, or a control where no as-sold sovereign value exists. Never occurrence-derived.

2 | Master limit table

All values in ppb (µg/kg), as sold basis. A brand meeting every value qualifies for the mark.

ANALYTE	TIER	HMTc LIMIT	BASIS
Lead (Pb)	Tier 1	10	human-grade read-across (Israel)

Cadmium (Cd)	Tier 1	5	human-grade read-across (Israel)
Total arsenic (tAs)	Tier 2	50	human-grade read-across (India)
Inorganic arsenic (iAs)	Tier 1	20	human-grade read-across (European Union)
Mercury, total (tHg)	Tier 1	4	human-grade read-across (Israel)
Methylmercury (MeHg)	Tier 1	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	Tier 2	250	human-grade read-across (European Union)
Tin (Sn)	Tier 2	5,000	human-grade read-across (India)
Aluminium (Al)	Tier 2	500	human-grade read-across (Australia / New Zealand)
Total chromium (Cr)	Tier 2	1,000	human-grade read-across (China)
Hexavalent chromium (Cr-VI)	Tier 2	≤ Cr	bounded by Cr (reflex speciation)

3 | Derivation – where each number comes from

Every cell traces to one named sovereign maximum level (the strictest for the nearest analog), or to an explicit control, not-material, or species-bounded determination. No occurrence statistic selects a certification value.

ANALYTE	HMTC	SOVEREIGN ANALOG / DETERMINATION
Lead (Pb)	10	Israel — human-food analog
Cadmium (Cd)	5	Israel — human-food analog
Total arsenic (tAs)	50	India — human-food analog
Inorganic arsenic (iAs)	20	European Union — human-food analog
Mercury, total (tHg)	4	Israel — human-food analog

Methylmercury (MeHg)	≤ tHg	MeHg carries no product-specific sovereign cell; it is a component of and bounded by its parent total tHg (MeHg ≤ tHg), an enforceable ceiling via reflex speciation rather than an empty cell.
Nickel (Ni)	250	European Union — human-food analog
Tin (Sn)	5,000	India — human-food analog
Aluminium (Al)	500	Australia / New Zealand — human-food analog
Total chromium (Cr)	1,000	China — human-food analog
Hexavalent chromium (Cr-VI)	≤ Cr	Cr-VI carries no product-specific sovereign cell; it is a component of and bounded by its parent total Cr (Cr-VI ≤ Cr), an enforceable ceiling via reflex speciation rather than an empty cell.

4 | Cite this standard

Pendergrass, K. (2026). *Vitamin/mineral supplements: HMTc standard* (Standard No. 10.83138/hmtc.std.18.pet-supplements-vitamin-mineral). Institute of Contaminant Standards. <https://doi.org/10.83138/hmtc.std.18.pet-supplements-vitamin-mineral>

© 2026 Institute of Contaminant Standards / Heavy Metal Certified. All rights reserved.

References

- [1] Australia / New Zealand — human-food maximum levels
Binds Al. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL
- [2] China — human-food maximum levels
Binds Cr. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL
- [3] European Union — human-food maximum levels
Binds iAs, Ni. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL
- [4] Israel — human-food maximum levels
Binds Pb, Cd, tHg. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL
- [5] India — human-food maximum levels
Binds tAs, Sn. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL

STATUS AND LICENCE

A normative certification standard, editorially reviewed and version-controlled in-house; every value traces to a named sovereign maximum level, disclosed in the derivation. © 2026 Institute of Contaminant Standards / Heavy Metal Certified. All rights reserved.

DATA AVAILABILITY

The works this reference draws on are listed in full in the references above and on the briefing page at <https://heavymetalcertified.com/standards/pet-supplements-vitamin-mineral>. Primary legal instruments and expert-body assessments are named with their public identifiers; the underlying occurrence and toxicology corpus is maintained on the Heavy Metal Index.

COMPETING INTERESTS

This briefing is published by the Heavy Metal Tested & Certified (HMTc) program, operated by the Institute of Contaminant Standards. Its statements about government regulations, toxicology, and occurrence are sourced to the cited primary and expert-body records and to the independently maintained Heavy Metal Index; the program's own certification thresholds are not used as evidence for any factual claim made here.

PUBLICATION HISTORY

This revision 2026-08. The full dated record is maintained at <https://heavymetalcertified.com/standards/pet-supplements-vitamin-mineral>.